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Codinaea leomaiae sp. nov. from the Brazilian Atlantic Forest

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Abstract — *Codinaea leomaiae* was collected on the decaying leaf of an unidentified plant and is described and illustrated as a new species. It is distinguished by polyphialidic conidiogenous cells that produce broadly fusiform or eye-shaped, unicellular, hyaline conidia with a single, curved setula at each end. A comparative table and conidial illustrations of some rather similar non-setose *Dictyochaeta* species are also provided.

Key words — asexual fungi, systematics, neotropic

Introduction

Codinaea, introduced by Maire (1937) with *C. aristata* Maire as the type species, is characterized by distinct, single, mononematous or synnematous, brown to pale brown conidiophores and an acerose to subulate, septate, dark brown, thick-walled seta that can be present in some species. The conidiogenous cells are mono- or polyphialidic, terminal, determinate, or indeterminate with a few sympodial extensions and sometimes with enteroblastic percurrent regenerations and with distinct cylindrical or funnel-shaped flaring, sometimes collapsed collarettes at the conidiogenous loci and producing unicellular or

septate, falcate to lunate hyaline conidia with a filiform appendage at each end (Almeida & Gusmão 2014, 2015; Granados et al. 2014; Hughes & Kendrick 1968; Li et al. 2012; Oliveira et al. 2015; Réblová & Winka 2000; Seifert et al. 2011; Xia et al. 2015). For two decades, *Dictyochaeta* (Spegazzini 1923) was considered an earlier name for *Codinaea* for two decades (Gamundi et al. 1977), but following the molecular evidence provided by Réblová & Winka (2000), both genera are currently accepted (Seifert et al. 2011). Li et al. (2012) recommended that species with filiform appendages should be retained in *Codinaea* and taxa lacking appendages placed in *Dictyochaeta*.

During a mycological survey of microfungi associated with leaf litter in a Brazilian Atlantic forest a conspicuous fungus was collected that is described here as a new *Codinaea* species.

Materials & methods

Individual collections were placed in plastic bags, taken to the laboratory, and treated according to Castañeda (2005). Mounts were prepared in polyvinyl alcohol-glycerol (8 g PVA in 100 ml of water, plus 5 ml of glycerol) and in lactic acid (90%), and measurements were made at a magnification of ×1000 under a Nikon Eclipse Ni-U microscope with bright field optics, and photomicrographs were obtained using DIC optics with a Nikon DS-Fi2 camera. The holotype was deposited in the Herbarium, Universidade Federal de Pernambuco, Recife, Brazil (URM).

Taxonomy

Codinaea leomaiae M.A. Barbosa, Malosso & R.F. Castañeda, **sp. nov.** Fig. 1

IndexFungorum IF 551859

Differs from all other *Codinaea* and *Dictyochaeta* species by its polyphialidic conidiogenous cells and broadly fusiform or eye-shaped conidia with a single curved setula at each end.

Type Brazil, Pernambuco, Tamandaré, REBIO Saltinho, 8°43′S 35°11′W, alt. 85 m., on decaying leaf of an unidentified plant, 9.XI.2015, coll. M.A. Barbosa (**Holotype** URM 88249).

Etymology: Latin, *leomaiae*, named in honor to the Brazilian mycologist Leonor Costa Maia for her contribution to the study of fungi in Brazil.

Colonies on the natural substrate, scattered, hairy, black. Mycelium superficial and immersed, composed of septate, branched, brown, smooth-walled hyphae 1–2.5 µm diam. Setae absent. Conidiophores distinct, erect, straight or flexuous, cylindrical, 10–14-septate, dark brown below, pale brown to brown toward the apex, 260–300 × 7–9 µm, smooth. Conidiogenous cells polyphialidic, integrated, 40–50 × 4–5 µm, terminal, indeterminate with few sympodial extensions, pale brown, with 3–6 infundibuliform collarettes, 3.5–5 µm deep, 2—5 µm wide. Conidia broadly fusiform to eye-shaped, guttulate,

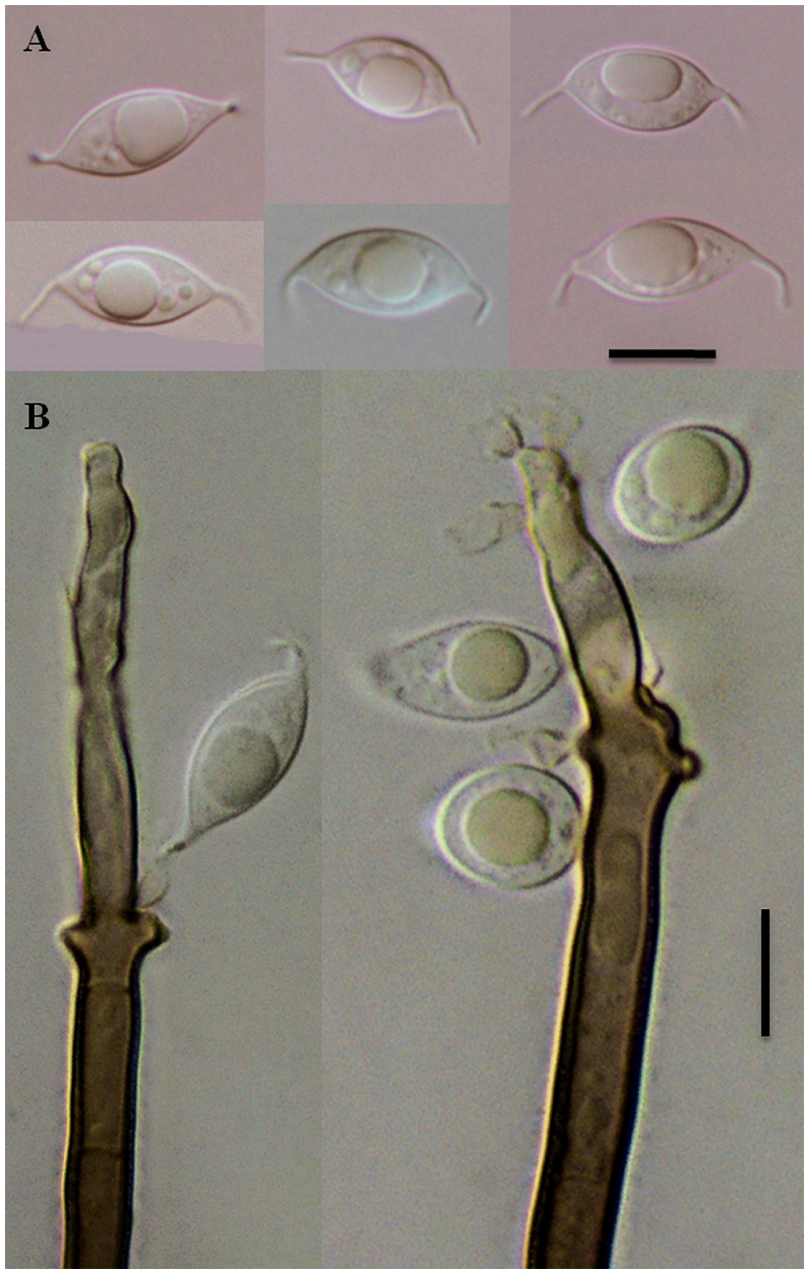

Fig. 1. *Codinaea leomaiae* (ex holotype URM 88249).
A. Conidia. B. Conidiogenous cells and conidia. Scale bars = 10 μm.

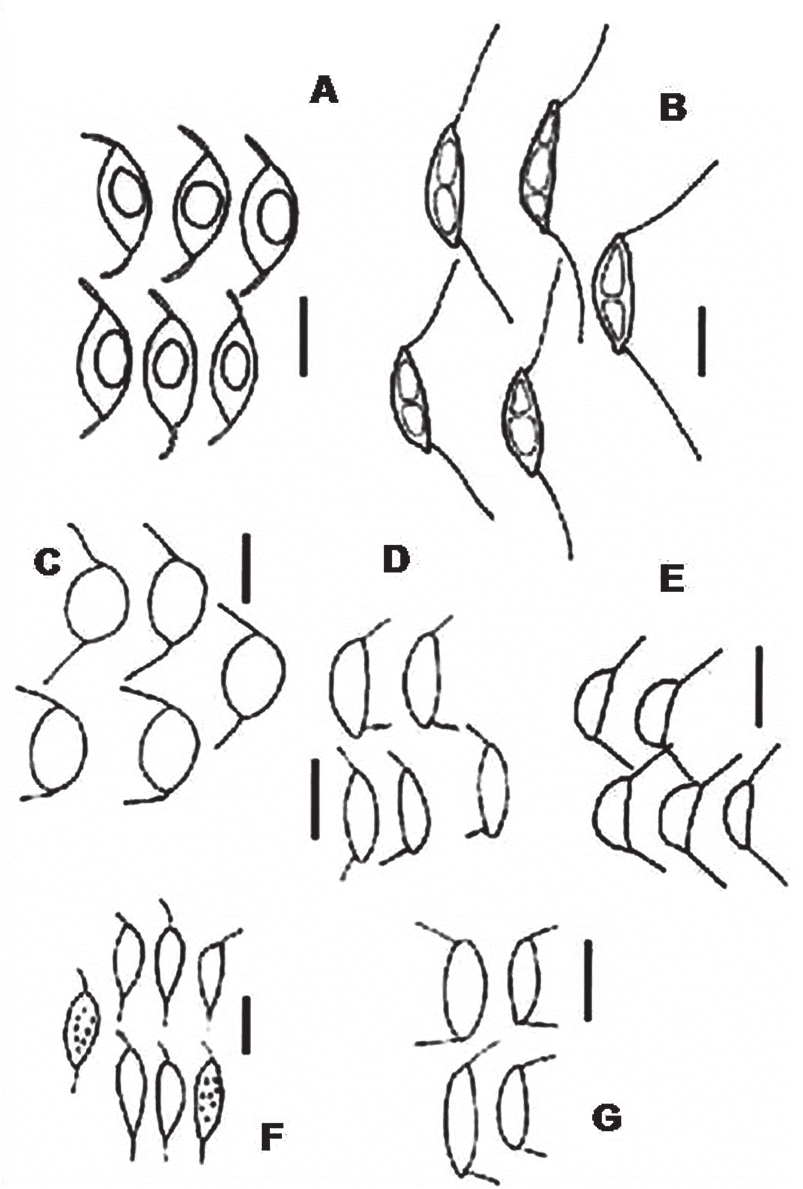

Fig. 2 Conidia of *Codinaea leomaiae* and similar *Dictyochaeta* spp. A. *C. leomaiae*. B. *D. aliformis* (Kuthubutheen & Nawawi 1991). C. *D. ciliata* (Bhat & Kendrick 1993). D. *D. daphnioides* (Kuthubutheen & Nawawi 1991). E. *D. renispora* (Whitton et al. 2000). F. *D. tropicalis* (Bhat & Kendrick 1993). G. *D. tumidospora* (Kuthubutheen & Nawawi 1991). Scale bars = 10 µm.

unicellular, 10–18 × 8.5–9.5 µm, thin-walled, hyaline, smooth, mostly with a filiform appendage at each end forming angles of 45–90°; basal appendage 3.5–5.5 µm long, curved, or rarely slightly curved or straight; apical appendage <6 µm long, curved.

Notes: Among all recorded *Codinaea* and *Dictyochaeta* species (Index Fungorum 2015) only *Dictyochaeta tropicalis* (Bhat & Kendrick 1993) superficially resembles *Codinaea leomaiae*. However, *D. tropicalis* [≡ *Codinaea tropicalis;* Oliveira et al. 2015] has monophialidic, terminal, determinate conidiogenous cells and ellipsoid to drop-shaped conidia, 7.5–9.5 × 3–5 µm with a filiform appendage at each end, with the apical appendage always straight, 2.5—3 µm long and the basal appendage curved, ≤3.5 µm long (Bhat & Kendrick 1993). Other non-setose *Dictyochaeta* species with a single appendage at each conidial end that resemble *C. leomaiae* are *D. aliformis*, *D. daphnioides*, and *D. tumidospora,* which have polyphialidic conidiogenous cells (Kuthubutheen & Nawawi 1991), and *D. ciliata* (Bhat & Kendrick 1993) and *D. renispora* (Whitton et al. 2000) characterized by monophialidic conidiogenous cells. These species are compared and illustrated (Table 1, Fig. 2).

Table 1. Comparison of some non-setose *Codinaea* and *Dictyochaeta* species with a single appendage at each conidial end

Species	Conidia (µm)	Setulae (µm length)	Reference
C. leomaiae	10–18 × 8.5–9.5	<6	This paper
D. aliformis	16–22 × 4–5	18–22	Kuthubutheen & Nawawi (1991)
D. ciliata	6.5–10.5 × 6–8	5–8	Bhat & Kendrick (1993)
D. daphnioides	10–15.5 × 3.5–5	3–5	Kuthubutheen & Nawawi (1991)
D. renispora	6–8.5 × 3–4.5	6–12	Whitton et al. (2000)
D. tropicalis	7.5–9.5 × 3–5	<3.5	Bhat & Kendrick (1993)
D. tumidospora	20–28.5 × 7–9.5	8–10.5	Kuthubutheen & Nawawi (1991)

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